

# MISSOURI CONSERVATIONIST

VOLUME 82, ISSUE 2, FEBRUARY 2021  
SERVING NATURE & YOU





# RENEW YOUR **HUNTING** *and* **FISHING** PERMITS TODAY

Buy Missouri hunting and fishing permits from vendors around the state, online at **[mdc.mo.gov/buypermits](http://mdc.mo.gov/buypermits)**, or through MDC's free mobile apps, MO Hunting and MO Fishing.

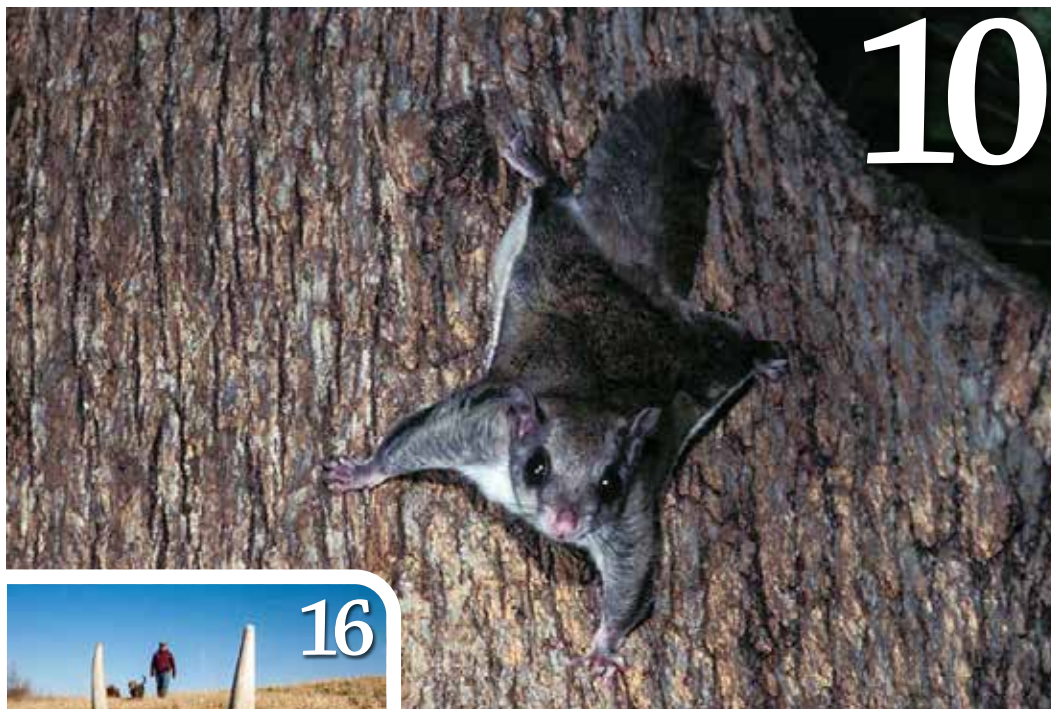


Serving nature and you®



# Contents

FEBRUARY 2021  
VOLUME 82, ISSUE 2



## FEATURES

### 10 Taking the Nightshift

Southern flying squirrels patrol the forests, keeping them healthy.

by Angie Daly Morfeld

### 16 Shed Antlers: The Other Deer Season

Finding shed deer antlers in winter is fun.

by Bill Graham

### 22 Missouri Black Bears

A species returns and science leads the way in managing its survival.

by Francis Skalicky

## DEPARTMENTS

- 2 Inbox
- 3 Up Front With Sara Parker Pauley
- 4 Nature Lab
- 5 In Brief
- 28 Get Outside
- 30 Places To Go
- 32 Wild Guide
- 33 Outdoor Calendar



## MISSOURI CONSERVATIONIST



### ON THE COVER

A flying squirrel  
inside a tree cavity

### NOPPADOL PAOTHONG

100mm macro lens, f/22  
1/100 sec, ISO 500

### GOVERNOR

Michael L. Parson

### THE CONSERVATION COMMISSION

**CHAIR** Don C. Bedell

**VICE CHAIR** Wm. L. (Barry) Orscheln

**SECRETARY** Mark L. McHenry

**MEMBER** Steven D. Harrison

### DIRECTOR

Sara Parker Pauley

### DEPUTY DIRECTORS

Mike Hubbard, Aaron Jeffries,  
Jennifer Battson Warren

### MAGAZINE STAFF

#### MAGAZINE MANAGER

Stephanie Thurber

#### EDITOR

Angie Daly Morfeld

#### ASSOCIATE EDITOR

Larry Archer

#### STAFF WRITERS

Bonnie Chasteen, Kristie Hilgedick,  
Joe Jerek

#### ART DIRECTOR

Cliff White

#### DESIGNERS

Shawn Carey, Marci Porter

#### PHOTOGRAPHERS

Noppadol Paothong, David Stonner

#### CIRCULATION MANAGER

Laura Scheuler

[mdc.mo.gov/conmag](http://mdc.mo.gov/conmag)



Download this  
issue to your  
phone or tablet at  
[mdc.mo.gov/mocon](http://mdc.mo.gov/mocon).



# Inbox



## Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email [Magazine@mdc.mo.gov](mailto:Magazine@mdc.mo.gov) or write to us:

MISSOURI  
CONSERVATIONIST  
PO BOX 180  
JEFFERSON CITY, MO 65102



**BIRD'S-EYE VIEW**  
I have a bird feeder and was so glad to see *Bird's-Eye View* (December, Page 10). I now know what birds are visiting my feeder.

Nancy Stockton  
Cassville

## MORE BIRD'S-EYE VIEW

My grandson Henry is intrigued with nature and looks forward to your magazine every month. He and his brother, Milo, are receiving online instruction this school year. Thanks to your December issue, they learned about Missouri birds, cut out and stapled the field guide together, and **made the wreath feeder**. We incorporated reading, measuring ingredients, and cooking skills for a successful and fun lesson. Thank you for your wonderful magazine. We Missourians are so lucky to have this publication!

Ginny Pherigo St. James



We loved *Bird's-Eye View* and the cut-out bird guide in the December *Conservationist*. It seems you are succeeding in providing ways for families to use their COVID downtime at home and in nature. Thank you.

Sue Allmart and Sammy Williams Mexico

## PERMITS

Thanks to your staff working to assist us to obtain hunting permits. In 2019, when I found out we had to obtain them online, I had trouble navigating your system. I contacted a woman who walked me through the system, and I printed out my deer tag. Last year, I had another problem, contacted another nice lady, who not only obtained it, but printed it out for me and mailed it since our printer was broken. I was appreciative and thankful for the kindness, professionalism, and courtesy provided by your staff.

David Thater Springfield

## LONGTIME READER

I am 87 years old and cannot remember how many decades ago I first read and enjoyed the *Missouri Conservationist*. It is better than ever, especially the photos, and I look forward to receiving it.

Harry W. Bratton Lee's Summit

## CAVES

January's *Conservationist* contained an irresponsible "invitation" to explore caves (*Get Outside*, Page 28). It is totally irresponsible to suggest visiting caves during the winter hibernation period for bats. Awakened dormant bats can be fatal to them. Also, entering caves any time of year can be a problem due to white-nose syndrome (WNS), not to mention that almost all caves on public lands are now closed due to WNS. Also, there is no mention of any cave safety techniques.

Bill O'Donnell, Interpretive Manager

Round Spring Cave, National Park Service, Retired

*MDC caves were closed in 2010 in response to white-nose syndrome (WNS), and before that time, "cave open" signs were displayed with proper safety requirements for entering. Winter disturbance of hibernating bats and potential spread of WNS is of serious concern. The closure of public land caves and necessary safety precautions should have been considered before including this article. We strive to strike an appropriate balance between encouraging responsible outdoor recreation and conservation messages. We apologize for missing the mark with this article. —THE EDITORS*

BOYS WITH WREATH FEEDER: GINNY PHERIGO

## Connect With Us!



## Conservation Headquarters

573-751-4115 | PO Box 180, Jefferson City, MO 65102-0180

## Regional Offices

Southeast/Cape Girardeau: 573-290-5730

Central/Columbia: 573-815-7900

Kansas City: 816-622-0900

Northeast/Kirksville: 660-785-2420

Southwest/Springfield: 417-895-6880

Northwest/St. Joseph: 816-271-3100

St. Louis: 636-441-4554

Ozark/West Plains: 417-256-7161

## Have a Question for a Commissioner?

Send a note using our online contact form at [mdc.mo.gov/commissioners](http://mdc.mo.gov/commissioners).





### Want to see your photos in the Missouri Conservationist?

Share your photos on Flickr at  
flickr.com/groups/mdcreaderphotos-2021,  
email Readerphoto@mdc.mo.gov,  
or include the hashtag #mdcdiscovernature  
on your Instagram photos.



1

1 | Rabbit in snow  
by **Bill Ekey**,  
via email

2 | LaBarque Creek  
Conservation Area  
by **castlewoodmo**,  
via Instagram

3 | Peregrine falcon  
by **Donnie Dryden**,  
via Flickr



2



3

### MISSOURI CONSERVATION COMMISSIONERS



Don  
Bedell



Steven  
Harrison



Mark  
McHenry



Barry  
Orscheln



# Up Front

with Sara Parker Pauley

✳ As the new year rolled in, a winter's storm blanketed the surrounding landscape and left a winter wonderland in its wake. The nearby bluff was framed in white, revealing an underlying bone structure that showcased its raw beauty, highlighted with stalwart trees and their naked limbs lifting skyward.

Looking out the window at the bluff and the birds frenziedly grabbing for seed at the feeders, I thought of how winter lays us bare, forces us to slow down, shed off what is no longer necessary, and rest awhile. Writer Katherine May opines, "Once we stop wishing it were summer, winter can be a glorious season ... a time for reflection and recuperation, for slow replenishment, for putting your house in order."

You'll read in this month's issue how wildlife winters, from flying squirrels huddling together in tree cavities (Page 10) to bucks shedding antlers to conserve energy through Missouri's colder months (Page 16).

And there are myriad opportunities to find your own connection to nature in wintertime. From a walk in the fresh snow on a nearby conservation area or an eagle-viewing road trip to perhaps a snow goose hunt or a trout fishing adventure at one of the many urban fishing venues — all are designed for us to breathe in the chilled air and get the blood pumping! So, let's savor this wintering season, with eyes opened to the mysteries that nature reveals during this special time of year.

*Sara Parker Pauley*

**SARA PARKER PAULEY**, DIRECTOR  
SARA.PAULEY@MDC.MO.GOV

The *Missouri Conservationist* (ISSN 0026-6515) is the official monthly publication of the Missouri Department of Conservation, 2901 West Truman Boulevard, Jefferson City, MO (Mailing address: PO Box 180, Jefferson City, MO 65102.) **SUBSCRIPTIONS:** Visit [mdc.mo.gov/conmag](http://mdc.mo.gov/conmag), or call 573-522-4115, ext. 3856 or 3249. Free to adult Missouri residents (one per household); out of state \$7 per year; out of country \$10 per year. Notification of address change must include both old and new address (send mailing label with the subscriber number on it) with 60-day notice. Preferred periodical postage paid at Jefferson City, Missouri, and at additional entry offices. **POSTMASTER:** Send correspondence to Circulation, PO Box 180, Jefferson City, MO 65102-0180. Phone: 573-522-4115, ext. 3856 or 3249. Copyright © 2021 by the Conservation Commission of the State of Missouri.

Equal opportunity to participate in and benefit from programs of the Missouri Department of Conservation is available to all individuals without regard to their race, color, religion, national origin, sex, ancestry, age, sexual orientation, veteran status, or disability. Questions should be directed to the Department of Conservation, PO Box 180, Jefferson City, MO 65102, 573-751-4115 (voice) or 800-735-2966 (TTY), or to Chief, Public Civil Rights, Office of Civil Rights, U.S. Department of the Interior, 1849 C Street, NW, Washington, D.C. 20240.

Printed with soy ink



# Nature LAB

by Bonnie Chasteen

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

## ELK RESTORATION

### Paternity Genetics

✳ **Last October, less than 10 years after the first of three shipments of Kentucky elk arrived in Missouri's Elk Restoration Zone, the state held its first-ever elk hunting season — a sign that restoration efforts have succeeded as planned.**

Even so, managers still had questions about the herd's genetics. One was, "Who's your daddy?"

"With translocated elk, we get concerned about a bottleneck effect that can last a long time," said MDC Biometrician Leah Berkman.

*Bottleneck effect* is a term geneticists use to describe what happens when a small, isolated group loses diversity and is at risk of "the effects of bad genes coming together," Berkman said. These effects can include low reproductive fitness, increased genetic diseases, and a reduced ability to cope with environmental changes.

"However," Berkman said, "while translocation can be stressful for elk, it can also shake up the group's breeding patterns." More males may get more opportunity to breed, and more genetic mixing helps the herd avoid the bottleneck effect, she said.



Elk are a polygamous species, meaning one male usually mates with many females. When MDC researchers put collars on these elk to collect survival and movement data, they also took a small genetic sample to help determine paternity.

Study of mating, birth rates, and paternity patterns helps MDC managers keep Missouri's restored elk herd strong

To study Missouri's restored elk herd's mating, birth rates, and paternity patterns, MDC partnered with University of Montana researchers.

Their goal was to compare the Missouri herd's genetic diversity with that of its parent herd in Kentucky. They also estimated effective population size and projected future losses in genetic diversity if the Missouri herd receives no new elk.

"We genotyped nearly every elk in the herd," Berkman said, and she sees encouraging evidence that the herd will do well in the future without costly intervention.

MDC Cervid Biologist Aaron Hildreth notes that this work helped his team establish "a sort of baseline that will help us track changes through time with future genetic work."

## Elk Genetics at a Glance

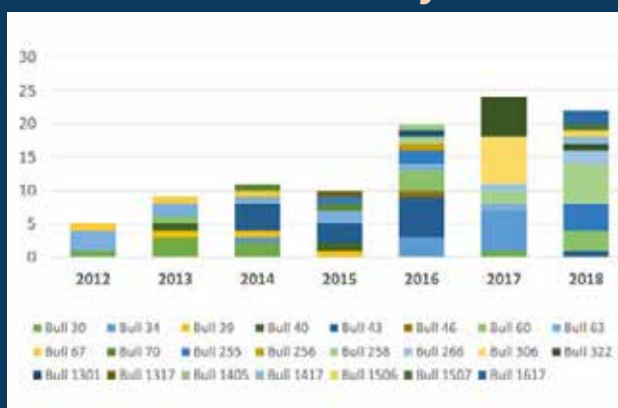
### Purpose

Determine retention of genetic diversity in Missouri's restored elk herd

### Methods

- Tracking with radio collars, ear tags, and microchips
- DNA sampling
- Genotyping and genetic analyses
- Identifying the most likely fathers

### Number of Calves Sired by Each Bull



### Results

Data suggest the elk translocation strategy may have given more bulls more chances to breed

### Partners

Rocky Mountain Elk Foundation, U.S. Fish and Wildlife Service Restoration Grant, University of Missouri, University of Montana



# In Brief

News and updates from MDC

## MISSOURI'S INAUGURAL ELK SEASON COMES TO A CLOSE

MDC REPORTS SUCCESSFUL SEASON WITH FIVE ELK HARVESTED

➔ Missouri's first elk-hunting season ended Dec. 20, 2020, with all five of the hunters selected for permits harvesting bull elk during the firearms portion, which began Dec. 12. An archery portion ran Oct. 17–25 with no harvests. The five Missouri hunters were selected for elk-hunting permits through a random drawing of more than 19,215 permit applications, including 33 for one resident-landowner antlered-elk permit and 19,182 for four general permits.

MDC congratulates the five Missouri hunters on their success!

"What an exciting gift right before the holidays to see all five hunters harvest elk in this first inaugural elk season in Missouri," said MDC Director Sara Parker Pauley. "This success also showcases the hard work and collaboration of our commission, staff, partners, landowners, and citizens. One of the hunters called me personally just a few minutes after he harvested an elk full of excitement and thanks, but the real thanks goes to the bigger team for making this happen."

"The rewards of the (elk restoration) efforts made over the past 10 years have made many avid hunters very happy and it is my hope, pleased," said former Conservation Commissioner Becky Plattner, who was on the



Joe Benthall of Mount Vernon harvested the first elk in December's inaugural elk firearms season.

commission during MDC's elk restoration efforts. "To the lucky individuals that scored the hunt, I congratulate you ... To my fellow commissioners, past and present, to all the staff involved, to the citizens who love the sport and the conservation of this beautiful state, congratulations!"

Joe Benthall, Mount Vernon, drawn for an antlered-elk general permit, harvested a 5x5 bull elk Dec. 12 on National Park Service property near Log Yard in Shannon County. He was the first of five Missouri hunters selected for elk permits to harvest an elk. Benthall has been deer hunting off and on for 25 years and had not hunted elk before. He says he applied for the Missouri opportunity because he has wanted to hunt elk, but has not had the time or money for a trip out west. He added that he only hunted during the firearms portion.

Michael Buschjost, St. Thomas, drawn for an antlered-elk general permit, took a 6x6 bull elk Dec. 15 outside of the refuge portion of the MDC Peck Ranch Conservation Area (CA). He has hunted elk in Montana, Colorado, and Wyoming, with two bulls and a cow elk harvested from those efforts. He said he was excited to hunt elk in Missouri and to take his three kids with him to scout the area before the season opened.

Sam Schultz, Winfield, drawn for an antlered-elk general permit, harvested a 5x6 bull elk Dec. 15 on private property in Shannon County. Schultz has been hunting for 30 years and he mostly hunts deer and turkey. He successfully hunted elk in Colorado in the early 2000s.

*continued on Page 6 »*

## INAUGURAL ELK SEASON

(continued from Page 5)

"My elk was originally a 6x7 bull, but he had two broken antler tines, which left him to be a 5x6," said Schultz. "It was a tough hunt, but I had a blast doing it. Best of all was one of my boys was with me when I harvested this awesome animal. Thank you, MDC, for bringing them back to Missouri."

Gene Guilkey, Liberty, drawn for an antlered-elk general permit, harvested a 6x7 bull elk on public land in Shannon County Dec. 16.

"I have never hunted elk before and this hunt was the dream trip of a lifetime," Guilkey said. "I literally dreamed of taking a 6x6 bull, but didn't think it was possible nor would I be up to it, but the good Lord above had better plans than I did!"

He added, "When I harvested this bull, I was stressed, relieved, and overjoyed all at the same time. I screamed loud enough that quite possibly all three counties involved could hear me! What a thrill! Taking this trophy was the hardest hunt I have encountered. It took a lot of scouting before and during the archery season to get the terrain laid out. During the hunt, we were delighted to find this bull on day three and focused on the area he was spotted in. He was actually bugling, which was an experience we did not expect so late after the rut. These are amazing animals!"

Bill Clark, Van Buren, drawn for the resident-landowner antlered-elk permit, harvested a bull elk on his property Dec. 19. Clark is a life-long hunter of deer, turkey, and small game. He has also pursued elk in Colorado and Wyoming in the 1990s. He and his family own 80 acres east of Peck Ranch CA where they conduct timber-stand improvements on the heavily forested property and plant clover and native grasses for elk and other wildlife. Clark says he applied for the elk hunt because he supports MDC's elk restoration and management efforts, wildlife management in general, and wanted to help the herd by thinning a bull.

"I see elk on our land all the time," Clark said. "I'm nearly 80 and use a cane and a crutch so I'm limited in my mobility. I was standing on my back deck and saw a group of cow elk about 100 yards through the trees in the yard with a spike bull with them. He stopped, and that was the shot I had and the shot I took. We then broke down the carcass and are processing it ourselves."

## Ask MDC

### Got a Question for Ask MDC?

Send it to [AskMDC@mdc.mo.gov](mailto:AskMDC@mdc.mo.gov)  
or call 573-522-4115, ext. 3848.

**Q: My community is planning to install a purple martin house near a large pond. Several flower gardens for butterflies and bees are nearby. With nesting martins overhead, won't this be the end of insects seeking nectar, shelter, and food? It seems incompatible.**

➔ A purple martin house may have some effect on the pollinators gathering at these gardens. A colony of martins may catch and eat several hundred beetles, horseflies, grasshoppers, dragonflies, and wasps daily. These acrobatic swallows hunt winged insects, helping to check the population of less-than-desirable insects.



Purple martin and house

Conservationists, however, hope to achieve several goals through the planting of pollinator-friendly gardens. For instance, more than 150 crops in the United States depend on pollinators, and foods such as apples, strawberries, tomatoes, and almonds wouldn't exist without them. Also, a plentiful



Bill Clark harvested a bull elk on his property in Van Buren. MDC developed the draw system to ensure opportunities for local landowners to participate in the elk hunt.

Clark added, "I'm really happy to represent what I believe to be one of the most important hunts of my life. This program is an example of one of the best things to happen for the people of Missouri in years, and I'm nearly 80 years old."

Elk are a native species in Missouri, but were hunted to extinction in the state through unregulated hunting during the late 1800s. Missouri's first elk hunt this fall came after years of restoration efforts of the native species by MDC, numerous partners including the Rocky Mountain Elk Foundation, and many supporters including local communities and area landowners. Learn more about elk restoration in Missouri at [short.mdc.mo.gov/ZYJ](http://short.mdc.mo.gov/ZYJ).

Learn more about elk hunting in Missouri online at [short.mdc.mo.gov/Znd](http://short.mdc.mo.gov/Znd).



supply of pollinator insects not only helps plants and trees maintain their genetic diversity, but it also helps them reproduce an adequate amount of seeds for dispersal and propagation.

We need plants to be pollinated. But we also seek to provide food for many types of wildlife — including birds. Pollination is just one service bees and butterflies provide. Another niche they fill is serving as nourishing food for adult birds and their young.

Also, purple martins don't eat all pollinators. Monarch butterflies, for example, are toxic and birds leave them alone.

**Q: There were four foxes in a friend's backyard last winter, but they disappeared at the first snowfall. What happened to them?**

→ The foxes may have retreated to their den to escape inclement weather. But winter is also the time of year when mating and breeding



occurs, which might also cause this change. Breeding typically peaks in January through March, with kits being born March to mid-May.

Throughout most of the year, foxes have no special home but sleep on the ground. However, during breeding season, dens are used for young. This is often a modified groundhog or former fox den, but it can be a den dug by the female fox.

Gray foxes — essentially an animal of warmer climates — uses dens more than red foxes.

For more information on Missouri's foxes, visit [short.mdc.mo.gov/Zfp](http://short.mdc.mo.gov/Zfp).



## Chris Doran

PERRY COUNTY  
CONSERVATION AGENT

*offers this month's*

# AGENT ADVICE

Feb. 7 marks the beginning of the Light Goose Conservation Order in Missouri. This order, which runs through April 30, is designed so hunters can reduce snow, blue, and Ross's goose numbers. Hunters must possess a Conservation Order Permit to participate. This permit is required for all hunters over age 15, including landowners, unless they have a Resident Lifetime Small Game Hunting Permit or a Resident Lifetime Conservation Partner Permit. Methods for harvesting light geese include shotguns capable of holding more than three shells and electronic calls or electronically activated calls. A daily bag or possession limit for light geese will not be in effect during the Conservation Order.

FOR MORE INFORMATION, VISIT  
[SHORT.MDC.MO.GOV/ZB9](http://SHORT.MDC.MO.GOV/ZB9).

## What IS it?

Can you  
guess this  
month's  
natural  
wonder?

*The answer is on  
Page 9.*





## SMOKED TROUT CHOWDER

The star of this chowder — Missouri's trout — will take you from the coldest of winter days to the warmth of spring. That's because Missouri is a great place to fish, and MDC provides anglers with ample opportunities year around. If you took advantage of the winter trout season and visited a stocked urban lake where you could keep your bounty, you are ready to try this hot, hearty meal right now. If not, trout season opens March 1 and this recipe will be just as tasty in the spring.

Serves 4

### INGREDIENTS:

2 tablespoons extra-virgin olive oil  
1 medium onion, finely diced  
3 carrots, finely diced  
2 medium potatoes, finely diced  
2 stalks celery, finely diced  
1 quart chicken broth  
¼ cup cream or milk  
¼ pound smoked trout, broken into bite-sized pieces  
Handful of fresh spinach, finely chopped  
A few fresh dill sprigs, finely chopped (can be replaced with a pinch of dried)  
Smoked Spanish paprika, a few pinches or to taste  
Salt and freshly ground pepper

**SAUTÉ** vegetables except spinach in oil about 10 minutes, stirring often. Add chicken broth and simmer, covered, until vegetables are very tender, about 45 minutes.

**MASH** vegetables, with a manual potato masher, in pot until chowder thickens to your satisfaction (Alternatively, pour half of soup into a blender and process on low speed, taking care to press firmly on the lid with your hand during processing to prevent hot liquid from flying out of the top. Blend until thickened, then return contents to the pot and stir until well combined.)

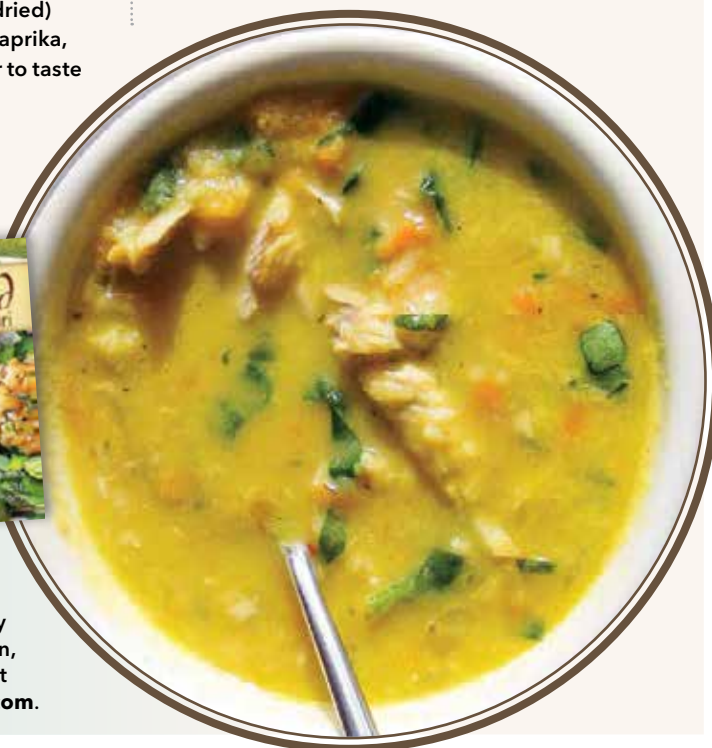
**ADD** cream, trout, and spinach. Cook briefly until fish is heated through, but spinach still bright green.

**SEASON** with dill, paprika, salt, and pepper to taste.

**SERVE** immediately with good bread.



This recipe is from *Cooking Wild in Missouri* by Bernadette Dryden, available for \$16 at [mdcnatureshop.com](http://mdcnatureshop.com).



## CONSERVATION COMMISSION SETS DEER, TURKEY HUNTING DATES

### 2021 Spring and Fall Turkey Hunting Dates

- ✖ Spring Youth Portion: April 10 and 11
- ✖ Regular Spring Turkey Season: April 19–May 9
- ✖ Fall Firearms Turkey Season: Oct. 1–31

### 2021–2022 Archery Deer and Turkey Hunting Dates

- ✖ Sept. 15–Nov. 12
- ✖ Nov. 24–Jan. 15, 2022

### 2021–2022 Firearms Deer Hunting Dates

- ✖ Firearms Deer Early Youth Portion: Oct. 30–31
- ✖ Firearms Deer November Portion: Nov. 13–23
- ✖ Firearms Deer Late Youth Portion: Nov. 26–28
- ✖ Firearms Deer Antlerless Portion: Dec. 4–12
- ✖ Firearms Deer Alternative Methods Portion: Dec. 25–Jan. 4, 2022

MDC recommended increasing the length of the antlerless portion from three days to nine days based on Missouri deer numbers, as well as stable or increasing numbers in most counties that allow two firearms antlerless permits and two landowner firearms antlerless permits. MDC harvest data shows that increasing the firearms antlerless harvest limit past two does not result in a significant increase in harvest.

Details on hunting regulations, harvest limits, allowed methods, required permits, and other related information will be available in MDC's *2021 Spring Turkey Hunting Regulations and Information* and MDC's *2021 Fall Deer & Turkey Hunting Regulations and Information* booklets. Both will be available where permits are sold prior to the related seasons.

Learn more about turkey hunting in Missouri at [short.mdc.mo.gov/ZZy](http://short.mdc.mo.gov/ZZy).

Learn more about deer hunting in Missouri at [short.mdc.mo.gov/Zki](http://short.mdc.mo.gov/Zki).

Buy Missouri hunting permits from vendors around the state, online at [mdc.mo.gov/buypermits](http://mdc.mo.gov/buypermits), or through MDC's free mobile apps, *MO Hunting* and *MO Fishing*, available for download through Google Play for Android devices or the App Store for Apple devices.



## CONSERVATION COMMISSION APPROVES MDC BEAR-HUNTING FRAMEWORK

The Missouri Conservation Commission gave final approval in December to MDC for the state's first black bear hunting season framework. The approved framework limits any future bear hunting to areas of southern Missouri and restricts bear hunting to Missouri residents only.

MDC will present recommendations to the Commission this spring for a potential initial permit quota and harvest quota. If quotas are set, Missouri residents will be able to apply during May for an October fall hunt.

MDC proposed a limited and highly restrictive black-bear hunting season following several years of public comment, including informational open houses in 2019 and a public input process this past spring and fall.

According to MDC, over the last 50 years bear numbers in Missouri have increased significantly and today the state is home to between 540–840 black bears with bear range in the state expanding. MDC research shows that Missouri bear numbers are currently increasing each year by approximately 9 percent and at this rate Missouri's bear population is expected to double in less than 10 years. Additionally, Missouri's bear population is connected to a larger bear population in the surrounding states of Arkansas and Oklahoma, both of which have established bear-hunting seasons.

"A bear-hunting season in our state will provide opportunities for Missourians to participate in the sustainable harvest of this valuable wildlife species," said MDC Furbearer Biologist Laura Conlee. "As our black bear population continues to grow, a highly regulated hunting season will be an essential part of population management in the future. The timing and length of the season, allowed hunting methods, and a limited permit allocation coupled with a limited harvest quota will ensure a sustainable harvest of our growing bear population."

Learn more about the bear hunting framework and permit process at [short.mdc.mo.gov/ZEA](https://short.mdc.mo.gov/ZEA).



Learn more about black bears in Missouri and MDC management efforts at [mdc.mo.gov/bears](https://mdc.mo.gov/bears).

### United States Postal Service Statement of Ownership, Management, and Circulation

(PS Form 3526, July 2014) Published annually in the February edition of this magazine as required by the United States Postal Service.

1. Publication Title: *Missouri Conservationist*; 2. Publication Number: 0026-6515; 3. Filing Date: 9/16/20; 4. Issue Frequency: Monthly; 5. Number of Issues Published Annually: 12; 6. Annual Subscription Price: Free In-State; 7. Complete Mailing Address of Known Office of Publication: Missouri Department of Conservation; PO Box 180, Jefferson City, MO 65102-0180; Contact Person: Tony Samson; Telephone: 573-522-4115, ext. 3828; 8. Complete Mailing Address of Headquarters or General Business Office of Publisher: Same as above; 9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor: Publisher: Missouri Department of Conservation; PO Box 180; Jefferson City, MO 65102-0180; Editor: Angie Morfeld; PO Box 180; Jefferson City, MO 65102-0180; 10. Owner: Missouri Department of Conservation; PO Box 180; Jefferson City, MO 65102-0180; 11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities: None; 12. Tax Status: The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes has not changed during preceding 12 months; 14. Issue Date for Circulation Data Below: September 2020; 15a. Total Number of Copies (Net press run): 519,818; b. Paid Circulation: (1) Mailed Outside-County Paid Subscriptions Stated on PS Form 3541: 0; (2) Mailed In-County Paid Subscriptions Stated on PS Form 3541: 0; (3) Paid Distribution Outside the Mails Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS: 0; (4) Paid Distribution by Other Classes of Mail Through the USPS: 6,484; c. Total Paid Distribution: 6,484; d. Free or Nominal Rate Distribution: (1) Free or Nominal Rate Outside-County Copies Included on PS Form 3541: 471,406; (2) Free or Nominal Rate In-County Copies Included on PS Form 3541: 0; (3) Free or Nominal Rate Copies Mailed at Other Classes Through the USPS: 0; (4) Free or Nominal Rate Distribution Outside the Mail (Carriers or other means): 0; e. Total Free or Nominal Rate Distribution: 471,406; f. Total Distribution: 477,890; g. Copies not Distributed: 1,500; h. Total: 479,390; i. Percent Paid: 1.35%; 16a. Paid Electronic Copies: 0; b. Total Paid Print Copies: 6,484; c. Total Print Distribution: 477,890; d. Percent Paid 1.35%; 18. Signature and Title of Editor, Publisher, Business Manager, or Owner: I certify that all information furnished on this form is true and complete: Anthony Samson, Distribution Center Manager, 9/16/20

## WHAT IS IT?

### SPICEBUSH SWALLOWTAIL CHRYSALIS

A spicebush swallowtail chrysalis can take many forms, shapes, and colors. The color, either green or brown, is directly related to the length of sunlight and serves as camouflage from predators. In the winter when days are shorter, the chrysalis is brown and the caterpillar overwinters as a pupa. The caterpillar is transforming inside. When the chrysalis is ready to hatch, it will become transparent, revealing the yellow and black spots of the butterfly's wings.







# Taking the NIGHTSHIFT

SOUTHERN FLYING  
SQUIRRELS PATROL  
THE FORESTS,  
KEEPING THEM  
HEALTHY

by Angie Daly Morfeld



Southern flying squirrels (*Glaucomys volans*) look like something cooked up in a mad scientist's laboratory — a la Frankenstein. Take a field mouse and stretch it to chipmunk size, mix in a squirrel's bushy tail, night-vision goggles, and a daredevil's wingsuit, and voila! You have a southern flying squirrel.

These chipmunk-sized rodents have large dark eyes, a slightly upturned nose and large ears. Males and females look alike — mostly gray, soft, silky fur on top and white on the bottom. Between their front and back legs is a loose flap of skin that stretches out like a kite when it's time to "fly."



A pair of southern  
flying squirrels  
prepare to take flight

PHOTOGRAPH BY  
JIM RATHERT







## THE FUR FLIES AT NIGHT

Although flying squirrels are common statewide, most people have never seen one. That's because they're nocturnal. At night, while gray and fox squirrels are curled in their nests, flying squirrels dive through the dark, gathering acorns and hickory nuts. But that's not all that's on their moonlight menu. They'll happily munch on moths, beetles, caterpillars, fruits, berries, garden vegetables, tree buds, tree sap, mushrooms, baby mice, baby birds, eggs, and birdseed.

To navigate at night, flying squirrels have huge eyes that catch the faintest of moonlight. And when it gets really dark, flying squirrels use long, sensitive whiskers to feel their way around.

## TO GLIDE OR TO FLY ... THAT IS THE QUESTION

Though "flying" is part of their name, the southern flying squirrel's moniker is quite misleading. They don't really fly at all. What they do to navigate the night sky can best be described as gliding.

When a flying squirrel decides it's time to take to the sky, it climbs to a high perch then plunges spread eagle into thin air. They use a flap of skin draped between their wrists and ankles called a patagium. When stretched, the patagium billows like a fur-lined parachute. By changing the slack in the patagium and steering with their long, flat tail, the squirrel swoops around branches and sails safely to its destination. With a lofty launch site and a good tail wind, flying squirrels can glide up to 250 feet.

## QUARTER-SIZE QUARTERS

Flying squirrels live throughout Missouri in forests, towns, city parks, even backyards — wherever there are large oak or hickory trees. They prefer mature forests with plenty of old dead or rotten trees riddled with woodpecker holes. In fact, they like to sleep 20 to 30 feet up in old woodpecker holes and other tree cavities. They can squeeze into a hole about the size of a quarter. In cities, flying squirrels make do, taking up residence in attics and birdhouses.



To find other creatures working the night shift, check out *Nature's Night Shift*. It is free to Missouri residents, and can be requested by calling 573-522-0108 or [pubstaff@mdc.mo.gov](mailto:pubstaff@mdc.mo.gov). Provide the publication title and your shipping address.





Southern flying squirrels are omnivores. They are considered one of the most carnivorous squirrel species since their diet includes birds, eggs, and insects like this cecropia moth.



With a lofty launch site and a good tail wind, flying squirrels can glide up to 250 feet.

## WINTER WARMING

Flying squirrels don't hibernate for the winter. Rather, when temperatures plummet, flying squirrels huddle together in tree cavities, relying on each other's bodies for warmth. Since they can't pack on fat like other squirrels, huddling together warms their dens by 30 degrees or more. Doing so allows them to reduce their metabolic rate and body temperature to conserve energy.

Social reasons also encourage this behavior among flying squirrels. It isn't unusual to see high numbers of flying squirrels together. Nineteen squirrels were once found snuggled together in Missouri, and 50 were packed into a single tree in Illinois. Now that's one packed house!



Southern flying squirrels use their tails to steer their way through the air. To execute the landing, the squirrel flips its tail upward, allowing its body to become upright to control the landing.





The female is the sole caretaker of her young. Though young are generally ready to live independently by eight weeks of age, they tend to stay with their mother until she has her next litter.

### mighty moms

Flying squirrels breed from February through March and again from August through October. Between four and six babies are born in the spring, and sometimes a second litter is born in late summer. Nests are prepared out of shredded bark and/or Spanish moss.

Newborns are naked, pink, and weigh less than one-fifth of an ounce. Female flying squirrels are attentive mothers, feeding their babies milk and wrapping them in their patagium so they stay warm. Females maintain several secondary nests to which they can bring their young to keep them safe. Flying squirrel mothers are fierce protectors. A flying squirrel was once seen moving her young, one by one, away from a forest fire and being singed in the process. Females will try to fight off predators even if outnumbered or if the foe is larger.

When young squirrels are about six weeks old, they attempt their first flight. Sometimes they need a nudge, but once airborne, the youngsters know exactly how to glide.

Flying squirrels grow fast, and live about five or six years.

---

Flying squirrels are an important part of a healthy forest ecosystem.

---



## FOREST FIGHTERS

Flying squirrels cover the same trees and areas at night that their larger relatives, the gray and fox squirrels, occupy by day. Though their nighttime activities may appear entirely self-centered — gathering food to fill their bellies — their antics do keep our forests healthy. These shy creatures are part of a healthy forest ecosystem. For instance, they feed on the buds of trees, stimulating tree growth. They also feed on wood-burrowing insects, helping to control those populations of pests. And their burying behaviors — especially when it comes to nuts and seeds — help our forests to continue.

Flying squirrels also serve as a benefit to other animals who feed on them, including bobcats, raccoons, weasels, owls, hawks, and tree-climbing snakes.

## SQUIRREL SPOTTING TIPS

If you have oak or hickory trees in your yard, chances are you also have flying squirrels. Many people enjoy their presence so much they put out special suet feeders and “birdhouses” to attract them. Here are some other tips to keep in mind:

- Spotting flying squirrels is easiest in autumn when the squirrels are busy gathering nuts for winter.
- A flying squirrel’s call sounds like *tseet*. Also listen for musical chirping and angry squeals.
- Let your eyes adjust to the dark. Stay away from bright lights for about 30 minutes.
- Put your bird feeder near a porch light. If you hear a soft *whump*, flip on the light to catch a squirrel gobbling seed.



There are about 50 species of flying squirrels ranging across most of North America down into Central America, and stretching from Southeast and Northern Asia into Siberia and Scandinavia. But you will only find two in North America — the northern flying squirrel (*Glaucomys sabrinus*) and the southern flying squirrel.

Northern and southern flying squirrels are both gray-brown, but the northern flying squirrel has belly fur that is gray at the base, while its southern counterpart’s belly is all white. Size is another way to tell northern and southern flying squirrels apart. The southern species is smaller, about 8 to 10 inches in length. Northern flying squirrels are 10 to 12 inches long.

The southern flying squirrel is found throughout the eastern United States, from Maine south to Florida and west from Minnesota south to Texas. The northern flying squirrel has a much patchier distribution, but is found primarily in the Northeast, along the West Coast, and into Idaho and Montana.

In addition, the southern flying squirrel has two litters per year while the northern flying squirrel mates once a year and it is unusual for this species to have more than one litter.

Parts of this article were taken from *Super Squirrels* by Matt Seek, which ran in *Xplor* in October 2012. ▲

Angie Daly Morfeld is the editor of the Missouri Conservationist. She has never seen a flying squirrel outside of a Rocky and Bullwinkle cartoon. She plans to use these tips to see if she can see one in person.





# Shed Antlers:

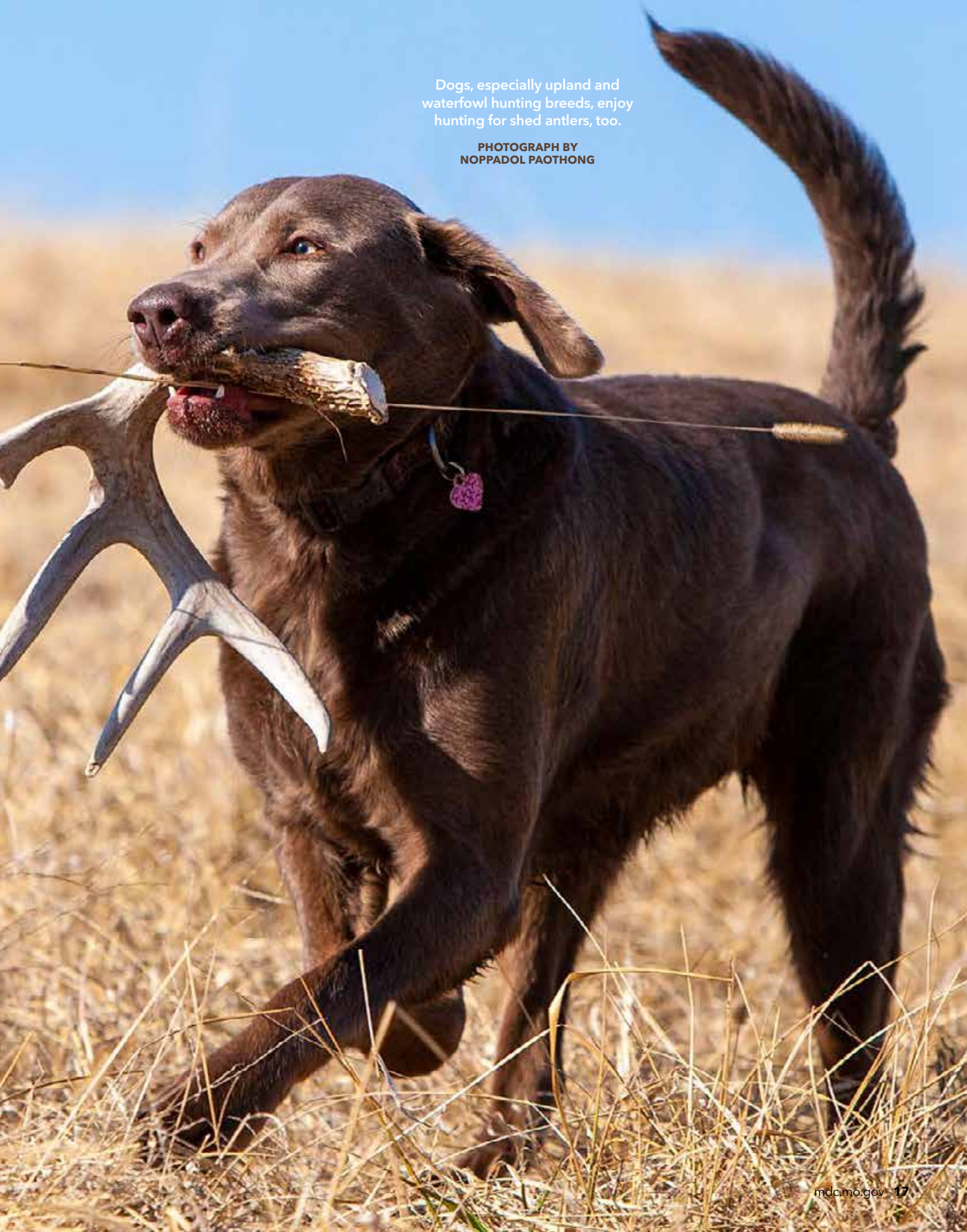
## *The Other Deer Season*

FINDING SHED DEER ANTLERS IN WINTER IS FUN  
by Bill Graham



Dogs, especially upland and waterfowl hunting breeds, enjoy hunting for shed antlers, too.

**PHOTOGRAPH BY  
NOPPADOL PAOTHONG**





**B**lood and bone make hardened antler beams and tines into fighting tools for buck deer. As autumn cold turns to winter, hormones and instinct trigger bucks into head-to-head clashes for the chance to mate with female deer. But like so much of nature's wild beauty, antlers are temporary. Bucks shed them in late winter. Chewing mammals and weather decay will destroy antlers, unless a person walking in the woods spots a whitish-tan glint on the ground and soon holds in their hands symmetrical wildness.

"I get as excited finding a shed antler from a buck as I do hunting deer," said Tyler Mahoney of Carl Junction. "It's a piece of the puzzle because you know this is where the deer walks and lives. How elusive the animal is, that also makes it part of the magic. An antler is a tangible thing you can pick up and bring home and you're not destroying anything. They're kind of rare, it's a trophy."

Many a winter hiker has stumbled across a shed antler by chance. But finding fallen antlers is also a purposeful passion for many people who enjoy white-tailed deer and their biological relationships with the land and seasons.

"The mystery of it is the best part," said Joshua Allen of Lee's Summit. "You never know where they are going to lie. It's a matter of getting out there and taking a lot of steps to find them."

## Elusive to Eyes

Where deer live is where shed antlers are found. Shed antlers can seem elusive because just like morel mushrooms, their tan colors blend in with leaves, limbs, and grasses on the ground. But just like morels, hunting shed antlers provides a good excuse for a walk in the woods and fields.

Following trails with deer tracks pressed into the soil or snow increases the chances of finding a shed. Deer often bed down during winter in tall native grasses or weed patches. Shed hunters should check the area near matted down deer beds thoroughly. Kevyn Wiskirchen, MDC scientist and deer biologist, likes to look where deer trails cross creeks and fence lines.

"When they jump to get across, that might cause enough jostle to get an antler to fall off," Wiskirchen said. "If I find one antler, I'll spend extra time searching the area. If one fell off, the other one will shortly. Sometimes when one antler falls off, the deer will feel unbalanced and may shake their head because they feel something wrong. It's not uncommon to find the second antler next to the first shed."

But like looking for morels, there's no guarantee you will find antlers when walking in the woods. A buck might drop antlers days apart in separate locations. When antlers drop is driven primarily by day length, but can be affected by hormones and physical condition.

Deer tracks, flattened grass in beds, and rubs on trees are good spots to look for sheds.







Bucks start growing antlers in spring and stay in velvet through summer, with a hairlike membrane feeding blood and nutrients to antlers.

## Annual Antlers

Bucks start growing antlers in spring. During summer, the antlers are “in velvet,” covered by a thin, hairlike membrane while blood vessels feed nutrients and minerals to the core of the antlers. When antlers reach full size, bucks rub them on trees and shrubs to remove the velvet and polish them to shiny bone. When the mating season ends, the connection between the antler and the pedicle, the place where the antler attaches to the buck’s skull, weakens until the antler drops off.

Biologists believe that cervids, such as deer and elk, shed antlers annually to help both the individual and the species. Losing heavy antlers helps bucks conserve energy in the harsh winter months and when traveling through summer’s tangled growth. A buck can break an antler when fighting in autumn. Fresh growth annually renews his fighting tools. A young buck may grow small antlers, but he may grow a far larger rack as he gets older, given good nutrition. The deer herd is helped when the fittest males breed does, and large antlers are a sign of fitness.

By autumn, antlers are full size. Deer scrape the velvet off by rubbing on hard surfaces, such as trees.





## Timing the Search

Freshly shed antlers can be found from December to May. However, most antlers are shed from late January into March. Some shed hunters have preferred hunting times.

"The majority of the places where I hunt sheds are in Benton or Henry counties or elsewhere in western Missouri," Mahoney said. "Most of the deer in those places don't drop antlers until the end of February and early March. The first week of March is when I get excited about getting out and looking."

Shed antler hunting makes a good family outdoor trek. The more eyes looking, the better the chance of seeing and finding. Shed hunters say overcast days are better than bright sunny days because with sun the shadows can conceal antlers.

"It's like finding mushrooms," Mahoney said. "You've got to move slow and really focus. Once you find one, it becomes second nature to see them."

Late winter is when most deer shed antlers.  
Many shed hunters start looking in January and continue into March.



Dogs, especially upland game and waterfowl hunting breeds, can be trained to find sheds by smell.



## FAQ on shed antlers

Permits are not required to find or possess shed antlers. However, sometimes buck deer die with antlers attached. Anyone finding a skull with antlers attached must contact their local conservation agent and obtain a possession permit if they wish to keep it.

Always seek permission to hunt for antlers on private property. Do not trespass.

Make sure gathering antlers is permitted on public lands that you visit. Some public lands prohibit their removal or require special permits.

Shed antler hunting is allowed on MDC conservation areas. Many areas have service roads and trails for hiking.

For more information about Missouri's white-tailed deer, visit [short.mdc.mo.gov/ZMK](http://short.mdc.mo.gov/ZMK).





A buck's polished antlers in autumn can be a hiker's found trophy in late winter.



## Extra Help

Some shed antler seekers train dogs to find them. Carla Long of Siloam Springs in Gentry County is a former professional dog trainer who taught Labrador retrievers to find antlers. She recommends upland game and waterfowl hunting breeds that have the drive and scenting abilities to consistently find sheds.

Long started their training at 4 to 5 months old. She kept found antlers outdoors to keep them from picking up house scents and used them in training. Dogs were given antlers to chew on and play with. She taught them fetch. When handling and hiding antlers for her pups to find, she wore plastic gloves to avoid human scent on them. She left them in hiding a few days before training, so all unnatural scent would be gone.

"You have to make the dogs fall in love with the antlers," Long said.

## The Digital Age

Digital technology helps Allen make thorough searches. One app gives him a map of where he's walked, so he can make sure he's looked everywhere. Sometimes he finds an antler when he returns to a starting point and gets the view from a different angle.

Also, you don't have to be in wilderness to find shed antlers. Places where deer have shelter and food will be the spots, such as field edges or where there is green winter browse. Sometimes those spots are in city parks and greenways.

"They might be in the woods in the back of a neighbor's yard in town," Allen said. "I've found them in backyards and on the side of the road. Wherever you've been seeing deer is a good place to look for antlers."

## Many Uses

People who collect antlers sometimes mount a matched pair as a wall hanger. Some add them to craft decorations such as wreaths, or they use them for rustic furnishings such as lamp bases. Many shed hunters just like to create a pile to look at and enjoy. Antlers also make good chew toys for dogs.

"For me, every single one is unique," Allen said. "You never find two that are exactly alike. When you find an antler, it's a very special feeling. You remember where you found it, and the memories you made out there looking." ▲

*Bill Graham is an MDC media specialist for the Kansas City and Northwest regions. He's a lifelong hunter, angler, and camper. He also enjoys hiking and photographing Missouri's best wild places.*



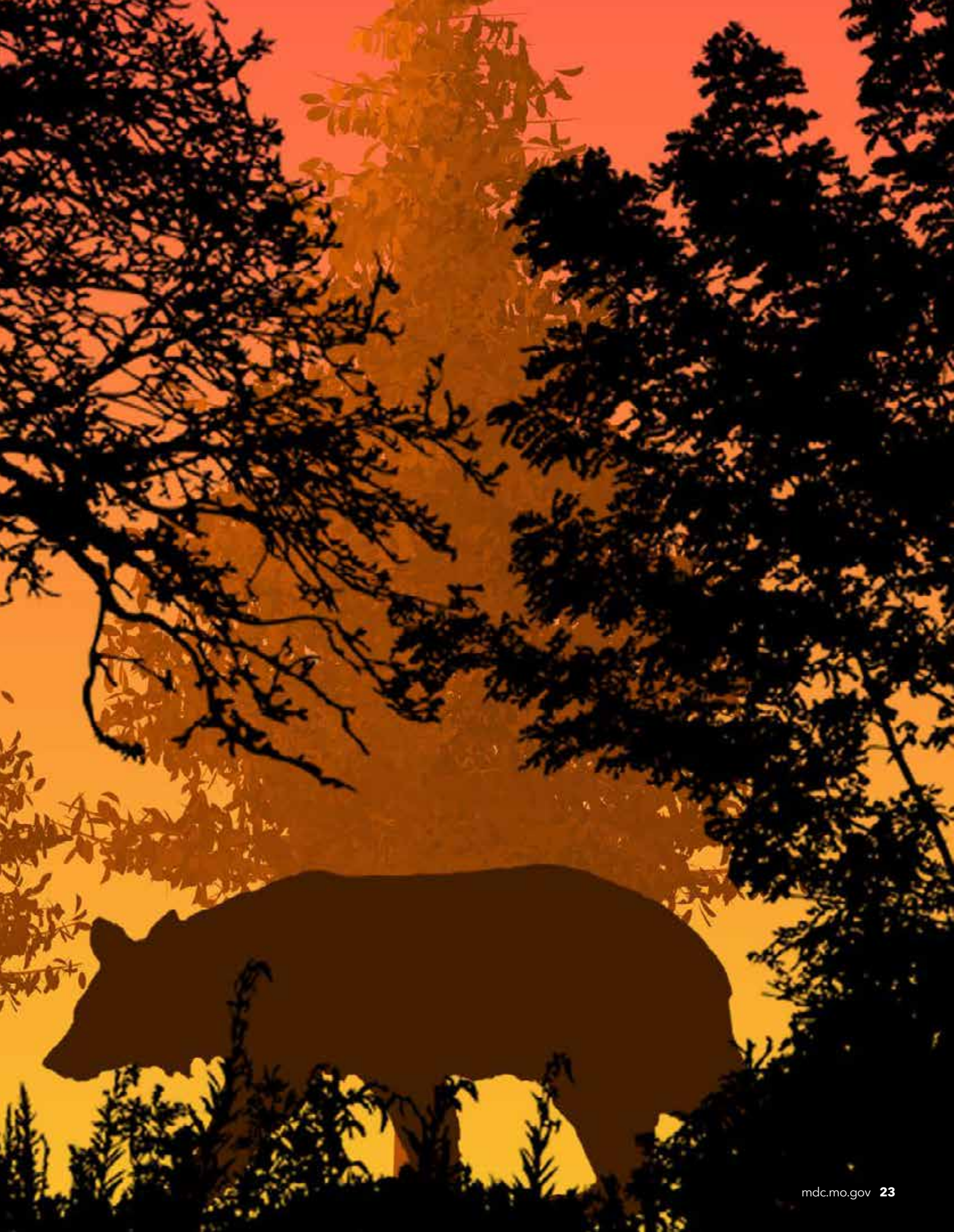


# *Missouri Black Bears*

A SPECIES RETURNS AND SCIENCE LEADS THE WAY IN MANAGING ITS SURVIVAL

by Francis Skalicky | illustration by Shawn Carey | photographs by Noppadol Paothong







**F**rom anomaly to a normality — that’s the journey black bears have traveled in many parts of southern Missouri.

Evidence shows black bear numbers are growing and range is expanding in the state, which provides proof that *Ursus americanus* is becoming firmly established in Missouri. A growing bear population in 21st-century Missouri provides both charm and challenge for the state’s residents. It’s all part of living in bear country and becoming bear aware.

“The black bear population is growing rapidly and expanding into new areas,” said Laura Conlee, an animal resource scientist for the Missouri Department of Conservation and the state’s bear biologist. “Right now, our bears are choosy and select high-quality forested habitat, but we know they are adaptable and capable of using more marginal areas, which can bring them closer to human habitation.”

To be clear, there are still many people who have not seen a bear in Missouri’s outdoors. Biologists estimated the state’s bear population in 2019 was around 700 bears statewide, with a statewide minimum estimated population of around 540 bears and a maximum estimated population of around 840 bears. Bears occur at a low density throughout a good portion of their range. However, research shows Missouri’s bear population is growing at a rate of about 9 percent per year, which means it could double in a decade.

Along with the scientific data, there’s also plenty of citizen science information about Missouri’s bear population in the form of the number of bear sightings — a number that has steadily increased in the past decade. These sightings include accounts of bears being seen in both rural and urban areas. These sightings include:

- In 2016, a bear that had been tagged in Christian County two years earlier was seen in Warren County, which meant this bear had crossed the Missouri River. This bear then traveled back to southern Missouri and was tracked to Cape Girardeau County in southeast Missouri, a true testament to a bear’s wandering abilities.
- In 2018, footage was taken of a bear walking through a residential area of Ballwin, a St. Louis suburb in St. Louis County.

## The Science of Bears

These and other sightings support the notion that Missouri’s black bear population is growing and expanding its range. This anecdotal evidence is backed by a decade of scientific bear research conducted by MDC biologists with the assistance of researchers from several universities.

“Each member of the bear research team brings a different skillset to the table, which has resulted in an exceptional study that will be used to inform management decisions related to bears over the next decade,” Conlee said.

Missouri’s bear research efforts began in earnest in 2010 with research efforts that included trapping and radio-collaring females and collecting fur samples from hair snares at a number of sites in southern Missouri. Much of the research efforts have continued through 2020.



**Wildlife Damage Biologist Scott McWilliams scans an immobilized black bear for a PIT tag. PIT tags are small microchips placed under the skin that help identify the animal in subsequent captures.**



**Laura Conlee (right), furbearer and black bear biologist, and Hannah Warner, former black bear technician, fit a female black bear with a new satellite collar during a winter den check.**

Each year, biologists put GPS collars on female bears to monitor annual survival and track them to winter dens to study reproductive success, litter sex ratios, and cub survival — all of which are important factors that influence bear population growth. MDC staff and research cooperators have determined that Missouri’s female bears give birth to an average of two cubs, about 60 percent of females reproduce each year, and about 70 percent of male cubs and 90 percent of female cubs survive to age 1. Additionally, adult female bears have high annual survival rates. GPS collars are also used to monitor home ranges, habitat use and connectivity, and the impacts of habitat on how the population is expanding in the state. All of the data collected has been used to study the growth of the bear population and how bears use Missouri’s landscape.

MDC’s research has revealed several things about Missouri’s bear population:

1. The bear population is growing rapidly.
2. Missouri has a lot of quality bear habitat.
3. Citizen science reports, coupled with the population and habitat research, help illustrate the adaptability and range expansion that is occurring as bears recolonize parts of Missouri.





A female black bear sits alert after receiving a new satellite collar. The satellite collar tracks the bear's movements during the course of the year allowing researchers to monitor bear movements, habitat use, and annual survival. Collars are also used to track the bear to winter dens to monitor reproduction.

## Watching a Comeback

"From an ecology perspective, one of the most exciting aspects of studying black bears in Missouri has been the rare opportunity to understand how a large carnivore can reoccupy its former range. Recovery of black bears in Missouri is an important conservation success," said Dr. Jerry Belant, Camp Fire Conservation Fund Professor at the State University of New York College of Environmental Science and Forestry (SUNY ESF), who directs an interdisciplinary team that researches wildlife issues.

Belant has assisted MDC in its bear studies and has also worked on bear research projects in other states.

"From a bear perspective, much of Missouri, particularly southern Missouri, is amazing habitat for black bears," he continued. "Though bears overall certainly select for broad habitat features such as forests, their ability to occupy diverse areas of Missouri is remarkable."

## Location, Location, Location

As research and citizen sightings indicate, it doesn't always require perfect habitat conditions for a bear to appear. Bears can adapt, and as the population grows, bears may be more likely to use marginal habitats, such as forests that are fragmented by agriculture or residential areas. Missouri already has bears that venture into residential areas in search of food and dispersing bears that wander into areas outside of typical bear range.

"We can think of the bear sightings we're seeing now 'outside of the normal range' as sort of preliminary forays by males into these areas, which will likely be accompanied, down the line, by reproductive females as the population establishes itself in new places", said Dr. Melanie Boudreau, a research scientist with Mississippi State University, who has been working on Missouri's bear project, including analyzing black bear habitat use and human-bear conflict data.

"Missouri is an area of range expansion for bears," said Dr. Mariela Gantchoff, a research scientist from SUNY ESF who works with Dr. Belant on Missouri's bear study. "That means there are bears who are established, mostly in southern Missouri, but there are also bears — particularly young bears — that are performing large-scale movements throughout the landscape looking for places to live. In those excursions, sometimes they run into urban-suburban areas."





**Top:** Hannah Warner, former black bear technician, uses radio telemetry equipment to locate a female black bear's den site.

**Right:** A black bear stands alert near a tree. Black bears will often climb trees as a means of escaping if disturbed or if they feel threatened.



## Managing Black Bears

MDC's research is used to inform management decisions, as laid out in MDC's Black Bear Management Plan.

"Use science-based methods to manage a self-sustaining population of black bears, a native species, while minimizing human-bear conflict, increasing bear awareness, and providing recreational opportunities for all Missourians." As this statement indicates, Missouri's bear data isn't being used solely to learn how bears are doing in the state. It's also meant to provide a framework for how bears and humans can cope with each other. For example, using data from these studies, researchers have been able to combine human-bear conflict reports with bear habitat use data to help understand which communities may be at an increased likelihood of experiencing human-bear conflicts as the bear population grows, which can help MDC prioritize community bear-related outreach efforts.

The population model that was developed as part of this study will be used to understand the impacts of harvest on population growth and to aid in the development of future permit and harvest quota recommendations. Bear habitat-use and connectivity information can be used to help inform habitat management practices or to help conserve important habitat linkages.

Adding to MDC's body of research on bears, MDC is undergoing a human dimension survey of residents through the survey firm Responsive Management. The purpose of this survey is to get a detailed understanding of Missourians' knowledge, opinions, tolerances, and views on bears. This, in turn, would provide MDC with information to consider aspects, such as social carrying capacity (the number of bears Missourians will tolerate on the landscape), tolerance levels for nuisance activity, options for sharing black bear educational information, and opinions on harvest methodologies when making management decisions.

## A History of Bears in Missouri

Before talking further about where Missouri's black bear population is going, it would be appropriate to talk about where it's been.

When the first settlers came to Missouri, black bears (the only species of bear found in Missouri) ranged across most of the state. As Missouri became settled, the state's black bear population dwindled. By the end of the 19th century, unregulated hunting had reduced Missouri's bear population to a small number found only in remote parts of the state. By the mid-1900s, it was presumed black bears had completely disappeared from the state.

But the black bear's story in Missouri wasn't finished. Beginning in 1958 and continuing into the 1960s, the Arkansas Game and Fish Commission trapped more than 200 bears in Minnesota and Manitoba, Canada, and relocated them to Arkansas to bolster the small population still thought to be roaming the state. This population took hold and wandering bears from Arkansas eventually began appearing in Missouri. It is thought most of the bears seen in Missouri today are the result of Arkansas' reintroduction program, although genetic evidence collected in bear studies in Missouri suggest a small, remnant population may have held on in the remote parts of this state.

In fact, because of sound management and conservation practices, bear populations have expanded from low points in the early-mid 1900s in many areas of the U.S. Missouri's bear population remains part of a much larger bear population that occurs in Missouri, Arkansas, and Oklahoma.





MDC's Black Bear Program collects black bear sighting reports from the public and MDC staff members. Sighting reports help paint a picture of range expansion and allow biologists to monitor and respond to human-bear conflicts. Missouri's bear population occurs primarily south of Interstate 44, but as the population grows, bear range is expanding into other parts of southern Missouri.

## Life with Bears

Regardless of their heritage, there's no doubt that bears are part of Missouri's outdoors landscape today. As they roam across the landscape searching for food, mates, and homes, their journeys sometimes cross paths with humans. Seeing a bear on a hiking or hunting trip usually doesn't pose much of a problem — there's enough space for you to avoid it and it to avoid you. However, when a curious bear starts to explore around your home, that's where problems can begin.

"As black bear and human populations increase across the state, so will black bear-human conflicts," Belant said. "Education about black bears and how to reduce the risk of conflict is key to ensuring we can live with this large Missouri native wildlife species."

Most problems people have with bears come when bears raid garbage cans, bird feeders, campgrounds, or other areas where humans have provided material (bird feed, garbage in an unsecured trash can, pet food, cattle feed, etc.) that can be food for bears. The trouble is compounded when bears are purposely fed by people. If a bear visits an area and is rewarded with food, it is almost certain to return. On these return trips, bears can cause substantial damage to buildings, trailers, vehicles, and any other structure that gets in their way of finding food. Thus, if a bear is finding food at a home, the homeowner should figure out if there's a way that food source can be eliminated or



bear-proofed. Bears should never be purposely fed. "If people can look at their yard and say to themselves 'I should remove that bird feeder now before a bear finds it,' we are in a much better place than if someone calls and wonders why they just saw a bear walk off with their bird feeder," said Conlee.

As Conlee points out, the challenge bears present to Missouri's landowners is the offshoot of a good thing — it means that bears have returned to Missouri and should be considered a significant conservation success. And, while the comeback of bears in the Show-Me State comes with challenges, there are also solutions.

"In Missouri, people should be very proud — they have conserved large tracts of forests within our beautiful state, making space for wildlife for this and future generations to enjoy," she said. "As such, there is a lot of prime habitat for bears to use, which has facilitated population recovery. While this also means there will be more bears around to potentially go into human spaces, MDC can work with the public to minimize negative bear interactions and ensure that humans and bears can share this great state for generations to come." ▲

*Francis Skalicky has been the media specialist for MDC's Southwest Region since Jan. 1, 1996. He lives in Springfield and tries to enjoy the outdoors with his family as often as possible.*



# Get Outside

in FEBRUARY



→ Ways to connect with nature



## Come On, Get Sappy

Sap starts flowing in Missouri forests in February. Missourians can tap sugar maple trees and make their own maple syrup. For more information on this fun family activity, visit [short.mdc.mo.gov/ZJe](https://short.mdc.mo.gov/ZJe).

You can also watch animals as they enjoy sap season. Squirrels nip off the buds of red and sugar maples as they swell with the sweet nectar and enjoy the sap that oozes out of the twigs. Yellow-bellied sapsuckers also feed on sap, but they use their beaks to drill small holes through the tree's bark and drink the sap that flows. They fiercely defend their sap wells from other animals, but are not always successful.

Yellow-bellied sapsucker



## Did He See His Shadow

Woodchucks — also known as groundhogs — start to emerge from hibernation in Missouri as early as the first week of February, but severe cold weather may delay them. At first, they come out only for short periods because little food is available, but as the daily temperatures rise and green growth increases, they spend more time aboveground. Adult males tend to emerge from hibernation first. Today's legend says if the groundhog sees its shadow on Feb. 2, we'll have six more weeks of winter. No shadow means an early spring. The gist of this is, if it's sunny on this day, we'll have six more weeks of winter. Old time Ozarkers had Feb. 14 as the magical day, not Feb. 2.

### Natural Events to See This Month

Here's what's going on in the natural world.



Pintails and mallards migrate north



Look for animal tracks in new snow



Chipmunks come out of hibernation





## Sounds of Spring

Nature is alive with sounds as spring approaches. These animals are part of the chorus. Can you pick them out?

**Snow geese** flying overhead make distant-sounding chorus of squawking yips that can be mistaken for coyotes. Their white plumage reflects lights from cities and makes their V-shaped flocks look silvery against the night sky. They overwinter in Missouri and migrate northward February through April.

**Coyotes'** mating season peaks in late February or early March — and so does their howling. At night, listen for group yip-howls of coyotes: short howls that often rise and fall in pitch, punctuated with staccato yips, yaps, and barks. It can create quite a ruckus.



**Spring peepers** are one of the first species to begin calling in the spring. This amphibian's peeping, jingling choruses are greeted as a true harbinger for the new season. Find them in fishless woodland ponds, ditches, and fishless wetlands.

**Red fox** mating season peaks in January and February. Its onset is indicated by an increased amount of nocturnal barking. Listen for howls, barks, squeals, and screams.



Large flocks of robins return



White-tailed deer feed in groups



## Take a winter snow walk!

Spending time outside in winter boosts your mood, makes you happier, and can reduce stress. Plus, a winter walk just might help you combat the winter blues.

### Be Prepared

- ➔ Review weather conditions before heading out
- ➔ Dress in layers
- ➔ Wear wool socks and waterproof, sturdy footwear

### Be Sure to Bring:

- ➔ Insulated gloves
- ➔ Warm hat
- ➔ Neck gaiter or scarf
- ➔ Sunglasses for wind and sun protection
- ➔ A warm drink, water, and snack

*As with any walk, be sure to tell someone where you are going and when you should be back.*

*Need a place to go?  
Visit [mdc.mo.gov/places-go](http://mdc.mo.gov/places-go)*



# Places to Go

## KANSAS CITY REGION

### Anthony and Beatrice Kendzora Conservation Area

Lake, wetlands draw birders, anglers

by Larry Archer

✧ With a 35-acre lake and nearly 120 acres of wetlands, the Anthony and Beatrice Kendzora Conservation Area (CA) attracts plenty of migrating waterfowl and shorebirds, which, in turn, attracts plenty of birders.

Located on nearly 750 acres in northeast Platte County and southeast Buchanan County between Kansas City and St. Joseph, Kendzora CA is a regular stop for migratory waterfowl and shorebirds, said Area Manager Chris Blunk.

“Right now, there’s a ton of different species of ducks up there, all kinds of migratory birds,” Blunk said. “It’s a big birding area in general.”

In addition to the lake and wetlands, the area’s nearly 450 acres of forest, fields, and grasslands also provide habitat for forest and upland bird species, he said.

When flooded by the Platte River, the wetlands join the lake as a fishing destination.

“If it gets water from the flood waters, there’s been a lot of fishing opportunities in the wetland as well,” Blunk said. “When that river floods, there’s a lot of bow fishing, and people catch all kinds of fish out of the waters after the lake or river has flooded it.”



“We’ve got the Platte River that runs through. And I can typically go out and see two or three bald eagles on my way to work every day.”

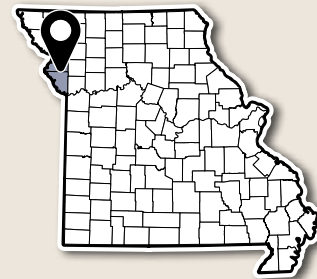
—Kendzora CA Manager Chris Blunk

DAVID STONNER





A kayaker enjoys a winter paddling trip around the 35-acre Kendzora Lake. The lake is fed from the east by Mitchell Branch (inset).



## ANTHONY AND BEATRICE KENDZORA CONSERVATION AREA

consists of nearly 750 acres in Platte and Buchanan counties. From West Frank Street (Route Z) in Edgerton, take North Platte Avenue/ Union Mill Road north 1.5 miles.

39.5223, -94.6418

[short.mdc.mo.gov/ZLV](http://short.mdc.mo.gov/ZLV) 816-858-5718

### WHAT TO DO WHEN YOU VISIT



**Birdwatching** Included in the Great Missouri Birding Trail ([short.mdc.mo.gov/ZLC](http://short.mdc.mo.gov/ZLC)). The eBird list of birds recorded at Kendzora CA is available at [short.mdc.mo.gov/ZL9](http://short.mdc.mo.gov/ZL9).



**Fishing** Black bass, catfish, crappie, sunfish.



**Hiking** Mowed maintenance roads available for hiking.



#### **Hunting Deer and turkey**

Deer and turkey regulations are subject to annual changes, so refer to the Spring Turkey and Fall Deer and Turkey booklets for current regulations.

Also **dove, rabbit, and squirrel**



**Trapping** Special-use permit required.



#### **Waterfowl Hunting** Open hunting.

Waterfowl regulations are subject to annual change, so check the *Migratory Bird and Waterfowl Hunting Digest 2020–2021* for current regulations.

### WHAT TO LOOK FOR WHEN YOU VISIT



White-tailed deer



Beaver



Double-crested  
cormorant



Bald eagle





## Boreal Chorus Frog

*Pseudacris maculata*

Status	Size	Distribution
Common	¾ to 1½ inches	Statewide, except in southeastern Missouri

**T**he boreal chorus frog is a small gray or tan frog with three wide, dark stripes or a series of spots down the back, and a wide, dark stripe passing through the eyes and extending along the sides. The belly is white, sometimes with a few gray spots on the throat and chest. Breeding males have dark throats. The call is a rasping, vibrating *prreeep* that sounds similar to running a fingernail over the teeth of a pocket comb. This frog is most abundant in prairies but also occurs on agricultural lands, in large river floodplains, and on the grassy edges of marshes. This is often the first frog to become active in the spring.



### Did You Know?

Boreal chorus frogs were formerly called western chorus frogs in our state. Scientists now recognize the two frogs as separate species. The frogs haven't changed — only their name and species designation. Western chorus frogs still exist as a species, but not in Missouri.



### FOODS

Boreal chorus frogs eat a variety of small insects and spiders.



### LIFE CYCLE

Breeding begins in late February or early March and peaks in April. Males chorus in temporary bodies of water and in fishless farm ponds. Males fertilize eggs as females lay clusters of 5 to 300. These hatch within a week, depending on water temperature, and metamorphosis occurs in six to eight weeks. This species overwinters in the ground and does not burrow very deep. A natural antifreeze in their blood keeps them from freezing.



### ECOSYSTEM CONNECTIONS

These small frogs prey on numerous insects and spiders, helping to control their populations, but they also fall prey to many larger predators at each stage of their life cycle. Because they are sensitive to pollutants, they are an indicator species, whose presence and population numbers help gauge the health of their ecosystem.



# Outdoor Calendar

❖ MISSOURI DEPARTMENT OF CONSERVATION ❖



## FISHING

### Black Bass

Impounded waters and non-Ozark streams:  
Open all year

Most streams south of the Missouri River:

- ▶ **Catch-and-Keep:**  
May 23, 2020–Feb. 28, 2021
- ▶ **Catch-and-Release:**  
Open all year

### Nongame Fish Giggling

Impounded Waters, sunrise to sunset:  
Feb. 16–Sept. 14, 2021

Streams and Impounded Waters,  
sunrise to midnight:  
Sept. 15, 2020–Feb. 15, 2021

### Paddlefish

Statewide:  
March 15–April 30, 2021

On the Mississippi River:  
March 15–May 15, 2021  
Sept. 15–Dec. 15, 2021

### Trout Parks

**Catch-and-Keep:**  
March 1–Oct. 31, 2021

**Catch-and-Release:**  
Nov. 13, 2020–Feb. 8, 2021

## TRAPPING

### Beaver, Nutria

Nov. 15, 2020–March 31, 2021

### Otters, Muskrats

Nov. 15, 2020–Feb. 20, 2021



## Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to buy permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you buy permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at [short.mdc.mo.gov/Zi2](https://short.mdc.mo.gov/Zi2).

## HUNTING

### Coyote

*Restrictions apply during April, spring turkey season, and firearms deer season.*

Open all year

### Crow

Nov. 1, 2020–March 3, 2021

### Deer

**Archery:**  
Sept. 15–Nov. 12, 2021  
Nov. 24, 2021–Jan. 15, 2022

**Firearms:**

- ▶ **Early Youth Portion (ages 6–15):**  
Oct. 30–31, 2021
- ▶ **November Portion:**  
Nov. 13–23, 2021
- ▶ **Late Youth Portion (ages 6–15):**  
Nov. 26–28, 2021
- ▶ **Antlerless Portion (open areas only):**  
Dec. 4–12, 2021
- ▶ **Alternative Methods Portion:**  
Dec. 25, 2021–Jan. 4, 2022

### Rabbit

Oct. 1, 2020–Feb. 15, 2021

### Squirrel

May 23, 2020–Feb. 15, 2021

### Turkey

**Archery:**  
Sept. 15–Nov. 12, 2021  
Nov. 24, 2021–Jan. 15, 2022

**Firearms:**

- ▶ **Youth (ages 6–15):** April 10–11, 2021
- ▶ **Spring:** April 19–May 9, 2021
- ▶ **Fall:** Oct. 1–31, 2021

### Waterfowl

See the Migratory Bird and Waterfowl  
Hunting Digest or visit [short.mdc.mo.gov/ZZx](https://short.mdc.mo.gov/ZZx)  
for more information.



ILLUSTRATION: MARK RATHIEL

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at [short.mdc.mo.gov/Zib](https://short.mdc.mo.gov/Zib). Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at [short.mdc.mo.gov/ZZf](https://short.mdc.mo.gov/ZZf).





*Serving nature and you®*



**Follow us  
on Instagram**

@moconservation

Be like this ring-billed gull and seize the day! Missouri's most common gull visited a local body of water and caught a fish. What will you discover in nature when you seize the day? Take a hike, go fishing, grab the binoculars and birdwatch. The possibilities are endless.

📷 by **Noppadol Paothong**

Subscribe online | [mdc.mo.gov/conmag](https://mdc.mo.gov/conmag) | Free to Missouri households